

WHAT WE CLAIM ARE:

1. A solid state image pickup apparatus comprising:
 - a solid state image pickup device having a number of color pixels disposed in a plurality of rows and columns in a pixel shift layout and generating
 - 5 and outputting pixel signals, said number of color pixels including at least three kinds of color pixels, color pixels of one of said at least three kind being distributed in a square lattice pattern aligned in row and column directions; and
 - a first signal processing unit for generating output pixel signals by using signals based on said pixel signals, said first signal processing unit
- 10 generating a part of output pixel signals directly from signals based on pixel signals of the color pixels of said one kind and generating another part of output pixel signals through interpolation process using signals based on pixel signals of color pixels of another of said at least three kinds.
- 15 2. A solid state image pickup apparatus according to claim 1, wherein said at least three kinds of color pixels are red color pixels, green color pixels and blue color pixels.
- 20 3. A solid state image pickup apparatus according to claim 1, wherein said at least three kinds of color pixels include complementary color pixels.
4. A solid state image pickup apparatus according to claim 2, wherein color pixels of said one kind are green color pixels.
- 25 5. A solid state image pickup apparatus according to claim 3, wherein color pixels of said one kind are green color pixels.

6. A solid state image pickup apparatus according to claim 1, wherein said at least three kinds of color pixels are color pixels of three kinds, said first signal processing unit generates the other part of output pixel signals through
5 interpolation process using signals based on pixel signals of color pixels of the other kind of said three kind.
7. A solid state image pickup apparatus according to claim 6, wherein said first signal processing unit performs interpolation processes by using signals based on
10 pixel signals of two color pixel rows sandwiching one color pixel row and generates output pixel signals for a reproduction pixel row in a reproduction image corresponding to the sandwiched one color pixel row.
8. A solid state image pickup apparatus according to claim 6, wherein two color
15 pixels of said another kind and two color pixels of said the other kind are distributed for each of color pixels of said one kind thereabout respectively.
9. A solid state image pickup apparatus according to claim 8, wherein each said two color pixels of a same kind are disposed with an associated color pixel of said
20 one kind intervening therebetween.
10. A solid state image pickup apparatus according to claim 1, further comprising a second signal processing unit for generating output pixel signals by performing interpolation processes using signals based on pixel signals of said number of
25 color pixels.

11. A solid state image pickup apparatus according to claim 10, wherein said second signal processing unit generates output pixel signals corresponding to a reproduction image having the number of reproduction pixels larger than the total number of said color pixels.

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12. A solid state image pickup apparatus according to claim 1, wherein said solid state image pickup device further comprises a vertical charge transfer element provided for each color pixel column, each said vertical charge transfer element being electrically connected to each color pixel of a corresponding color pixel

10 column.

13. A solid state image pickup apparatus according to claim 12, wherein said solid state image pickup device further comprises a horizontal charge transfer element electrically connected to each said vertical charge transfer element and an output amplifier electrically connected to the horizontal charge transfer element.

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